providing a semiconductor structure having a base layer, an insulation layer, and a monocrystalline silicon layer;

introducing a passivating substance X between the insulation layer and the monocrystalline silicon layer during a fabrication thereof, by means of the following steps:

providing two silicon semiconductor substrates;

oxidizing and forming a respective oxide layer on the two silicon semiconductor substrates;

selecting an introducing step from the group consisting of introducing the passivating substance X into at least one of the oxide layers, introducing the passivating substance X before the oxidation step into one of the silicon semiconductor substrates, and introducing the passivating substance X after the oxidation step into one of the silicon semiconductor substrates;

joining the two silicon semiconductor substrates by contacting the two oxide layers; and

partially removing one of the silicon semiconductor substrates and forming the monocrystalline silicon layer;

and

heat-treating the semiconductor structure with the passivating substance X, thereby causing the passivating substance to diffuse into an interface between the insulation layer and the monocrystalline silicon layer.

Claim 11 (amended). The method according to claim 10, wherein comprises forming a covering oxide layer on the monocrystalline silicon layer.

Claim 12 (twice amended). The method according to claim 10, which comprises patterning the monocrystalline silicon layer by etching away regions thereof down to an underlying insulation layer.

Claim 15 (amended). The method according to claim 10, which comprises:

doping the monocrystalline silicon layer differently region by region by means of ion implantation; and

performing the doping step after the step of introducing the passivating substance X and the heat-treating step.